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cont.*

said support shaft (4), said at least one trust unit comprising:

an abutment element (10) defining an abutment surface (8) adjacent to said at least one of said end faces (4b),

fluid-emitting means (9) for forming a layer of fluid between said abutment surface (8) and said at least one of said end faces (4b), said layer of fluid maintaining an interstice (1a) between said abutment surface (8) and said at least one of said end faces (4b) and exerting said repulsive force,

wherein said abutment element (10) comprises a foil element having at least one through hole (11) for passage of said fluid.

10. (new) A device as claimed in claim 9, wherein said fluid-emitting means 9) comprise a connection member (16) fastened to said foil element and a fluid-feeding pipe (13) removably connectable with said connection member (16), said connection member (16) having at least one through passage in communication with said at least one through hole (11).

11. (new) A device as claimed in claim 10, wherein said connection member (16) is arranged on a side of said foil element opposite to said at least one of said end faces (4b),

and wherein said at least one through passage is coaxial with
said at least one through hole (11).

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12. (new) A device as claimed in claim 9, wherein
said fluid-emitting means (9) comprise means for feeding air
under pressure.

13. (new) A balancing machine for a rotor, in
particular a rotor of an electric motor, said rotor having a
support shaft (4) defining a rotation axis (4a) and two end
faces (4b) transverse to said rotation axis (4a), the machine
comprising:

means (3) for rotatably supporting said shaft (4),
means (6) for rotating said rotor (5) with said
shaft (4), and

a device (1) for axial stopping of said rotor (5),
said device comprising at least one trust unit for exerting a
repulsive force on at least one of said end faces (4b) to
axially stop said shaft (4), said at least one trust unit
comprising:

an abutment element (10) defining an abutment
surface (8) adjacent to said at least one of said end faces
(4b), and

fluid-emitting means (9) for forming a layer of
fluid, and maintaining an interstice (1a), between said

abutment surface (8) and said at least one of said end faces (4b), said layer of fluid generating said repulsive force.

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cancel*

14. (new) A machine as claimed in claim 13, wherein said abutment element (10) comprises a foil element having at least one through hole (11) in communication with said fluid-emitting means (9) for forming said layer of fluid and maintaining said interstice (1a).

15. (new) A machine as claimed 14, wherein said fluid-emitting means (9) comprise a connection member (16) fastened to said foil element and a fluid-feeding pipe (13) removably connected with said connection member (16), said connection member (16) having at least one through passage in communication with said at least one through hole (11).

16. (new) A machine as claimed in claim 13, wherein said fluid-emitting means (9) comprise means for feeding air under pressure.

REMARKS

The Official Action of August 29, 2002, and the prior art cited and relied upon therein have been carefully studied. The claims in the application are now claims 9-16, and these claims should define patentable subject matter consistent with what is stated in the Office Action, in that

new independent claim 9 conforms with allowable claim 5, and new independent claim 13 should be patentable for similar reasons.

Accordingly, applicant respectfully requests favorable consideration and early formal allowance.

Acknowledgement by the PTO of the receipt of applicant's papers filed under Section 119 is noted.

The PTO has objected to applicant's specification as being a literal translation of the Italian priority application.

In deference to the examiner's views, a number of amendments have been presented above which places the specification in more idiomatic English.

Claims 1-8 have been rejected under the second paragraph of §112. This rejection is respectfully traversed, particularly insofar as it might be deemed to apply to the new claims.

Thus, claims 1-8 have been deleted and been replaced by new claims 9-16. In drafting claims 9-16, applicant has kept in mind the criticisms of claims 1-8 under the second paragraph of §112, and all the points raised have been addressed with respect to the new claims. Applicant is

preceding in reliance of the fact that no other criticisms have been made with respect to the form of claims 1-8.

For the record, except for the fact that claim 9 constitutes a rewriting of claim 5 in independent form, the amendments made are cosmetic only, i.e. amendments of a formal nature made to place the claims in better form consistent with U.S. practice. Thus, such amendments occasioned by the rejection under §112 are not "narrowing" amendments because the scope of the claims has not been reduced in this regard.

Also for the record, applicant believes that the claims as originally drafted, considered in light of the specification (consistent with the law), would not have been confusing to those skilled in the art, and therefore the claims in their previous form are fully in accordance with §112. At worst, the criticisms are **criticisms only** as to form.

Applicant respectfully requests withdrawal of the rejection insofar as it might presently be deemed to apply to the new claims.

Claim 5 has been indicated as being directed to allowable subject matter. Applicant understands that claim 5 is deemed by the PTO to define novel and unobvious subject matter under §§102 and 103. As indicated above, new main claim 9 constitutes a rewriting of claim 5 in independent

form, and therefore claim 9 and the claims which depend therefrom should be clearly allowable.

Claims 1-4 and 6-8 have been rejected as obvious under §103 from Bock et al USP 5,855,110 (Bock). This rejection is respectfully traversed.

As indicated above, claims 1-8 have been canceled and new claims 9-16 substituted therefore.

These new claims include an independent claim 9 and dependent claims 10 to 12 relating to a device for axial stopping of a rotor, and an independent claim 13 and dependent claims 14 to 16 directed to a balancing machine for a rotor.

The applied prior art does not teach or suggest that the abutment element comprises a foil element with a through hole for the passage of the fluid. The applied reference to Bock besides not teaching a foil element, also does not teach a **through** hole in the elements 601 and 602 of the bearing 6, because the holes 71 and 605 **extend axially only along a portion of the elements 601, 602**. In fact, in the embodiment of Fig. 2, the choke 602 has apparently no through bores, but the air throughout is directed through it (see column 4, lines 33, 34), whereas in the embodiment of Fig. 3 the bearing plate 601 is said to be permeable to compressed air (column 4, lines 50-53). Thus, between the air feeding pipe 62 and the bearing gap there is provided an element of a material

permeable to compressed air and the bores do not extend throughout this element.

New claims 10 and 11, dependent from patentable claim 9, relate to some structural features involving the foil element, namely the arrangement and connection of the fluid-feeding means (9) on the foil element. New claim 12, also depending from new claim 9, specifies that the fluid-feeding means comprise means for feeding air under pressure.

New claim 13 is directed to a balancing machine for a rotor, particularly a rotor of an electric motor, comprising a device for axial stopping of the shaft or the rotor, the device comprising:

- at least one trust unit for exerting a repulsive force on at least one end face (4b) of the shaft (4) to axially stop the shaft, the unit having an abutment element (10) defining an abutment surface (8) adjacent said one end face (4b), and

- fluid-emitting means (9) for forming a layer of fluid, and maintaining an interstice (1a), between said abutment surface (8) and said end face (4b), the layer generating said repulsive force.

Neither Bock nor the references of record suggest a balancing machine having a fluid bearing for axially stopping the shaft of a rotor to be balanced.

As described in the specification of the present application (page 3, lines 14-23), in prior balancing machine there arises the problem that if the end faces of the shafts of the rotors to be balanced are not perfectly perpendicular to the axis of the shafts, the end faces, on sliding against the axial-abutment elements which axially hold the shafts, give rise to vibrations. These vibrations may be interpreted as unbalance signals, which unbalances do not in fact exist.

Applicant has found that this problem can be efficiently overcome by providing a balancing machine having an abutment element with an abutment surface adjacent at least one end of the rotating shaft and fluid feeding means for forming a layer of fluid, and maintaining an interstice, between the abutment surface of the abutment element and the adjacent end of the shaft.

The fluid layer avoids any contact with the end face of the shaft while preventing any axial displacement of the shaft. Therefore, even if the end faces of the shaft are not perfectly perpendicular to the axis thereof, no additional vibrations arise at the abutment element axially stopping the shaft, and thus no improper unbalance signals are generated and detected by the balancing apparatus. This results in a more precise balancing operation.

Bock teaches a fluid bearing (6) in a spinning machine between an end face of a rotating shaft and a support exerting an axial force on the shaft, **in order to reduce wear between the end face of the shaft and the support.** Bock admits that such a fluid (aerostatic) axial bearing is known in open-end spinning devices (see the full paragraphs in column 1 of the reference to Bock), and suggest a new device wherein a wear indicator is provided to timely alert the personnel that the bearing plate is to be replaced.

Bock does not deal with vibrations arising between the end face of the rotating shaft and the axial bearing, and can therefore not obviously suggest the use of a fluid axial bearing to prevent vibrations in a balancing machine, in order not to adversely influence the unbalance detection in such a machine.

On the other hand, mere reduction of wear between a rotating shaft and its axial bearing will not necessarily eliminate vibrations of the rotating shaft. Please consider in this respect an approach wherein a wear resistant material is used for the bearing.

It is therefore believed that patentable merits should be envisaged in new claim 13 and that this claim also should be allowed.

New claims 14 to 16, which depend from new claim 13, further define the subject matter of the parent claim and should thus also be allowable.

The prior art documents made of record and not relied upon have been noted, along with the implication that these documents are deemed by the PTO to be insufficiently pertinent to warrant their application against any of applicant's claims, even as originally presented.

Applicant respectfully requests favorable consideration and early formal allowance.

Respectfully submitted,

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